

A POST-WISCONSIN RECORD OF *FRAXINUS NIGRA*¹

GLADYS F. WEST

Plate 324

THIS paper adds *Fraxinus nigra* Marsh. to the immediately post glacial fossil flora of New York.

The specimen under consideration was collected by Dr. Frank Leverett in Oak Orchard Swamp, Orleans County, New York, in 1893. It represents a piece of a log which was found buried under about three feet of muck. A number of other logs were found in the same place but, since they all appeared to be alike, a sample was taken from only one. The swamp lies in low places between gravelly ridges and knolls and rests upon Wisconsin till (5).

The development of the swamp deposit began at the time of the draining of Glacial Lake Lundy (Glacial Lake Dana, 3), which resulted in the inauguration of Glacial Lake Iroquois in the Ontario basin, and the establishment of Lake Erie (6).

A remnant of the Lake Lundy waters remained for a long time in the Tonawanda Creek basin in northwestern New York which became Lake Tonawanda. It was a long, narrow, shallow lake which extended from the western side of Niagara Falls, eastward through Niagara and Orleans counties for a distance of about fifty miles. The floor of the eastern end of old Lake Tonawanda in Orleans County is now Oak Orchard Swamp (4, pp. 136-144). The fossil logs can reasonably be said to have grown sometime during the life of Glacial Lake Iroquois. They represent the remains of trees which probably grew along the margin of Lake Tonawanda and either fell in or were washed in at the time of a flood. Later, changing drainage conditions caused the disappearance of the waters of this lake and the development of a swamp in its eastern end, which is now occupied by a dense growth of tamarack.

The wood, although soft and very light in weight, was found to be in an excellent state of preservation. After a careful comparison of the fossil wood with wood of all the American species of the genus, and reference to published descriptions (8), it has been identified as *Fraxinus nigra* Marsh., black ash (PL. 0, FIGS. 1-4).

Only a few instances of the occurrence of ash have been reported in

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the Pleistocene of this country. Fossil leaves of black ash have been reported by Penhallow (7) in the interglacial deposits of the Don Valley in Ontario.

The present range of black ash, according to Sargent (9), is from southern Newfoundland and the northern shores of the Gulf of St. Lawrence westward to Lake Winnipeg in Canada, and southward to New Castle County in Delaware, the mountains of West Virginia; westward to Knox County in southwestern Indiana where he considered its presence doubtful now; central Iowa, central Missouri and northwestern Arkansas. According to Deam (2), however, black ash occurs locally throughout nearly all of Indiana and in the southern part it is found sparingly in cypress swamps. In New York it is found in the lower regions in wet woods on bottomlands or along sluggish streams; at higher altitudes it grows along cold mountain streams and in deep, poorly drained swamps (1).

Little climatic significance can be attached to the presence of black ash in this particular instance except to say that the climate was probably similar to that of its northernmost limits today or, perhaps, even cooler due to the close proximity of the ice front. In the early stages of Lakes Iroquois and Tonawanda, the ice front probably stood a little north of the Carlton moraine in New York (4, pp. 134; 136), whence it gradually retreated northeastward out of the Ontario basin (6, Pl. 21), until by the close of Iroquois time it spanned the St. Lawrence Valley at a point below Kingston, Ontario (4, p. 144).

It is quite true that a great deal of climatic significance cannot always be attached to the presence of a single species, but the assembling of scattered records of the occurrence of only one or a few fossils may make possible the reconstruction of past floras of certain areas and the determination of the dominant components of those floras, from which certain conclusions may be drawn as to the climatic conditions which prevailed.

SUMMARY

Wood identified as *Fraxinus nigra* Marsh., black ash, has been found in New York in a post-Wisconsin deposit which dates to a period after the inauguration of Glacial Lakes Iroquois and Tonawanda.

I wish to thank Dr. Frank Leverett for the fossil specimen and the data concerning it, and Dr. H. P. Brown of the New York State College of Forestry for woods of *Fraxinus*.

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EXPLANATION OF PLATE 324

FIG. 1. *FRAXINUS NIGRA*. Transverse section $\times 45$, showing arrangement and distribution of vessels in early and late wood, narrow rays and terminal wood parenchyma.

FIG. 2. *FRAXINUS NIGRA*. Radial section $\times 100$, showing margin of a growth ring, wood fibers, vessel segments, terminal pore in a late vessel, vascentric and terminal wood parenchyma.

FIG. 3. *FRAXINUS NIGRA*. Tangential section $\times 100$, showing vessel segments, wood fibers, vascentric wood parenchyma, and distribution of rays in late wood.

FIG. 4. *FRAXINUS NIGRA*. Tangential section $\times 200$, showing pitted vessel segments of early wood.

NOTES ON THE DESMID FLORA OF NEW ENGLAND I.

THE GENUS *EUASTRUM* IN MASSACHUSETTS¹

GERALD W. PRESCOTT

Plate 325

THE genus *Euastrum* is a very interesting one for study, presenting as it does a number of taxonomic problems and a great variety of beautiful cells. The wall-markings in species of this genus, often very complex and elaborate, are helpful for identification purposes but to this end there is demanded critical discrimination on the part of the student. Because of the fact that these markings are easily obscured by density of cell-content, they are frequently overlooked. The failure to give sufficient attention to these often specific wall-characters leads to erroneous determinations, inadequate descriptions and, too

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